

AD-A113 885 ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/6 4/2
19304B MLRS, 19305A MLRS, MISSILE NUMBERS BN-031, BN-019, BN-01--ETC(U)
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AD
DR 1226
Mar. 82

AD A113885

METEOROLOGICAL DATA REPORT
19304B MLRS, 19305A MLRS
Missile Numbers BN-031, BN-019,
BN-018, BN-017, BN-016, BN-027
Round Numbers V-230/MD-84, V-231/MD-85,
V-235/MD-89, V-232/MD-86, V-233/MD-87, V-234/MD-88
13 March 1982

by

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ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

ECONOM

UNITED STATES ARMY ELECTRONICS COMMAND

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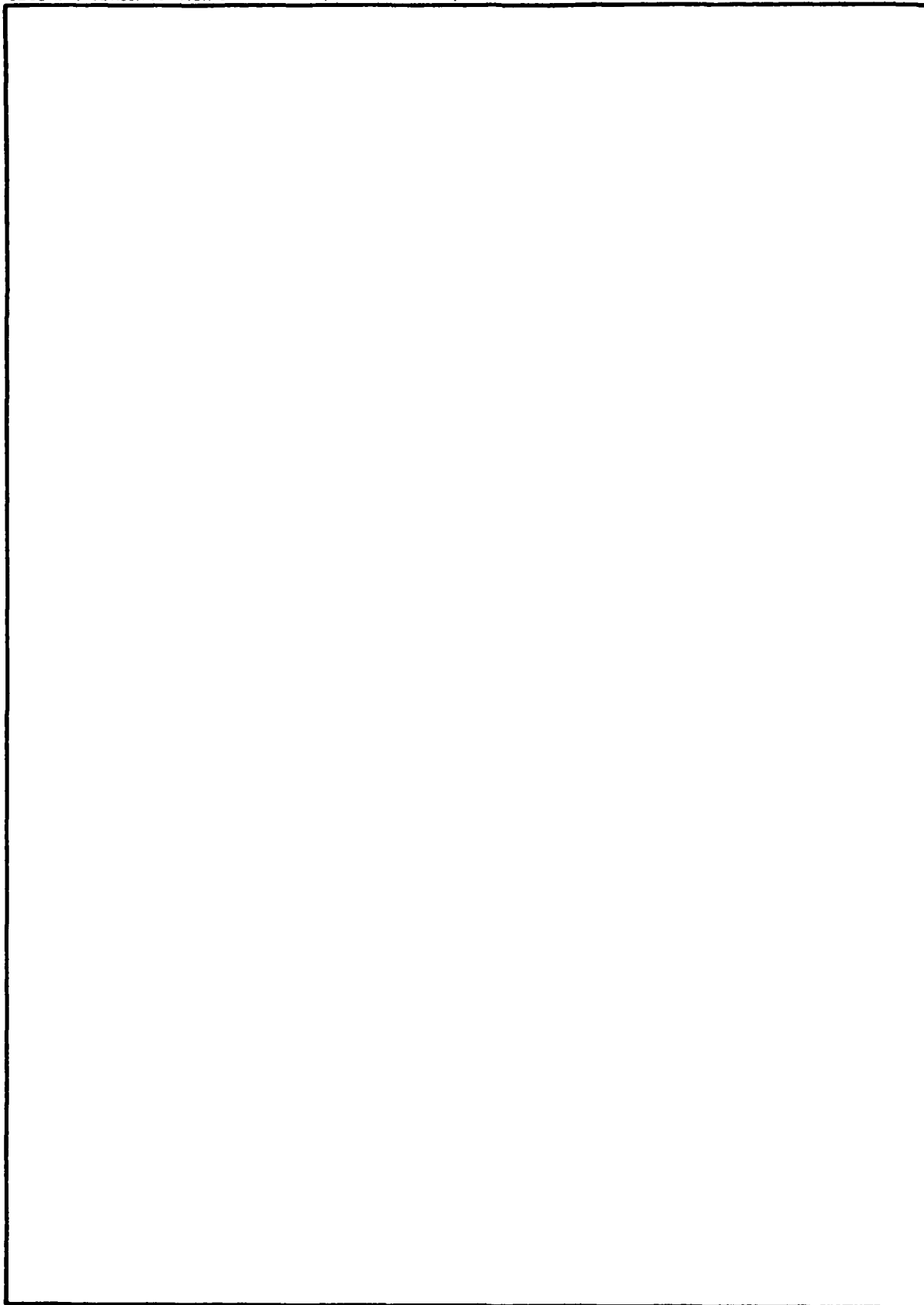
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INTRODUCTION

19304B/19305A MLRS, Missile Numbers BN-031, BN-019, BN-018, BN-017, BN-16, and BN-027, Round Numbers V-230/MD-84, thru V-235/MD-89, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1132:26, 1132:30, 1132:35, 1138:10, 1138:30, and 1138:34 MST, 13 March 1982. The scheduled launch times were 1130, 1130:04.5, 1130:09, 1131:00, 1131:04.5 and 1131:09 MST.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature (°C), relative humidity, dew point (°C), density (gm/m³), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

(1) Low level wind data were obtained from pilot-balloon observations at:

SITE AND ALTITUDE

LC-33 2 Km
NICK 1550 Meters

(2) Air structure data (rawinsonde) were collected at the following Met Sites:

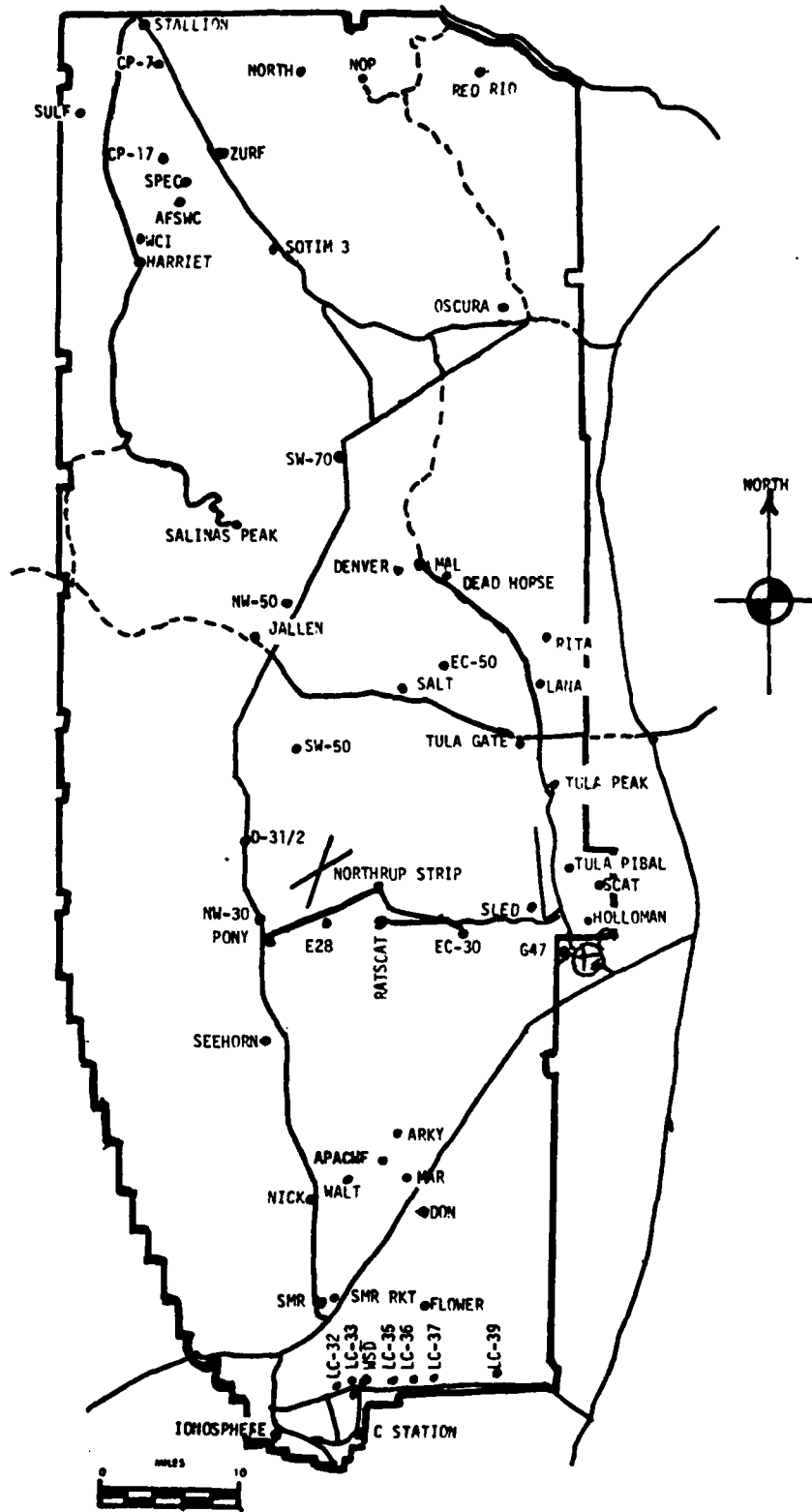
SITE AND TIME

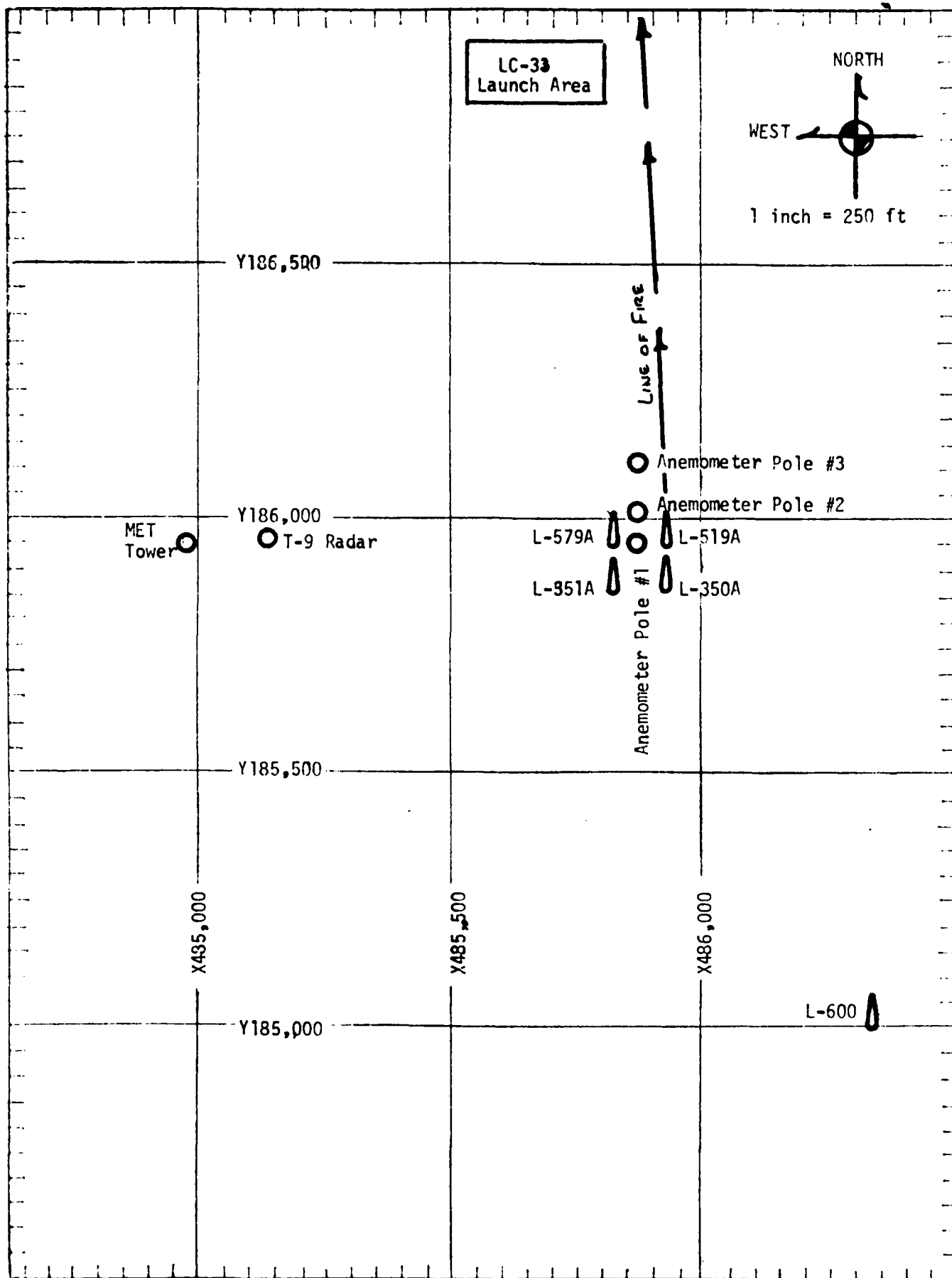
WSD 0830 MST
LC-37 0930 MST
WSD 1030 MST
WSD 1130 MST



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DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A	

WSMR METEOROLOGICAL SITES





PROJECT SURFACE OBSERVATION

TABLE <u>1</u>									
STATION <u>LC-33 E & A</u>									
DATE <u>13</u> <u>MAR</u> <u>82</u>									
X= <u>484,932.64</u> Y= <u>185,957.73</u> H= <u>3983.00</u>									
TIME M S J	PRESSURE inbs	TEMPERATURE OF °C	DEW POINT OF °C	RELATIVE HUMIDITY %	DENSITY gm/m ³	DIRECTION degs	SPEED kts	CHARACTER kts	VISIBIL- ITY
1132	873.2	20.5	3.8	33	1031	170	14		40
1136	873.2	20.5	3.8	33	1031	195	09		40

OBSTRUCTIONS TO VISIBILITY	CLOUDS							REMARKS		
	1st LAYER			2nd LAYER		3rd LAYER				
	AMT	TYPE	HGT	AMT	TYPE	HGT	AMT		TYPE	HGT
	1	CU	6500	8	AS	10,000	1	C1	26,000	VIRGA WNW
	1	CU	6500	8	AS	10,000	1	C1	25,000	VIRGA WNW

PSYCHROMETRIC COMPUTATION

TIME:	1132	1136
DRY BULB TEMP.	20.5	20.5
WET BULB TEMP.	11.2	11.2
WET BULB DEPR.	9.3	9.3
DEW POINT	3.8	3.8
RELATIVE HUMID.	33	33

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	123	09	T-30	156	10	T -30	153	11
T-20	124	11	T-20	150	10	T -20	153	17
T-10	122	11	T-10	145	10	T -10	149	15
T0.0	123	16	T0.0	151	14	T 0.0	158	19
T+10	130	13	T+10	155	11	T +10	159	17

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	155	10	T -30	154	15
T-20	139	12	T -20	156	11
T-10	144	13	T -10	179	12
T0.0	168	11	T 0.0	174	12
T+10	131	10	T +10	170	16

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	135	16	T -30	144	13
T-20	157	10	T -20	148	11
T-10	175	10	T -10	151	12
T0.0	164	13	T 0.0	152	15
T+10	166	16	T +10	149	17

TABLE 4 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.20 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.20 Y186,110.06 H4043.92 43.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	173	07	T-30	193	06	T-30	206	13
T-20	176	08	T-20	192	08	T-20	200	13
T-10	169	08	T-10	185	07	T-10	195	12
T0.0	168	10	T0.0	196	08	T0.0	195	12
T+10	163	11	T+10	180	09	T+10	200	14

TABLE 5 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	204	07	T-30	185	10
T-20	165	10	T-20	180	14
T-10	177	10	T-10	191	09
T0.0	194	07	T0.0	196	10
T+10	151	10	T+10	185	10

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	180	12	T-30	175	15
T-20	180	12	T-20	174	14
T-10	181	11	T-10	168	16
T0.0	171	13	T0.0	168	17
T+10	177	10	T+10	156	12

1-TIME PILOT-BALLOON TRACKING INFORMATION

DATE 13 MARCH 1982

SITE: LC 33

TIME: 1132 MST

WSTN COORDINATES:

X= 486,372.00

Y= 184,146.75

H= 3,981.15

SITE: NICK

TIME: 1132 MST

WSTN COORDINATES:

X= 470,734.56

Y= 255,775.64

H= 4,126.57

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	170	11
150	MISG	MISG
210	MISG	MISG
270	156	21
330	161	21
390	150	25
450	160	27
510	165	22
570	174	22
630	177	23
1150	188	23
1350	185	23
1550	195	27
1750	195	29
2000	189	31

Data obtained from Nike-Herc
Tracked pilot-balloon
observation.

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	164	04
150	145	14
210	143	16
270	141	16
330	140	16
390	140	17
450	143	17
510	145	20
570	157	19
630	174	19
1150	175	22
1350	176	27
1550	178	26
1750		
2000		

Data obtained from single
theodolite tracked pilot-balloon
observation.

TABLE 7

AIMING AND T-TIME COMPUTER MET MESSAGES
13 MARCH 1982

WSD 0830 MST
METCM1324064
131550122874

00142006 28790874
01075005 28780864
02224011 28740839
03253024 28470800
04257036 28110753
05281038 27840708
06292038 27470666
07309038 27150626
08333042 26680587
09336053 26260551
10359056 25910516
11365065 25570483
12376073 25010436

WSD 1030 MST
METCM1324064
131750122875

00338018 29410875
01247026 29220864
02262028 28850839
03257027 28500800
04268025 28050753
05282036 27620709
06305039 27250666
07347044 26930625
08348043 26460587
09344043 26070550
10344044 25780515
11346051 25410482
12357065 24890435

LC-37 0930 MST
METCM1325064
131650124874

00000000 29050874
01312005 28900864
02245010 28640838
03251030 28400799
04263041 28060752
05291045 27750708
06309044 27460665
07314042 27030625
08325051 26640587
09345047 26240550
10363052 25800515
11356063 25460482
MISSING

WSD 1130 MST
METCM1324064
131850122873

00444020 29480873
01321027 29340863
02315027 29100838
03302025 28830799
04311028 28360753
05332023 27820709
06339030 27290666
07348038 26870626
08350040 26460587
09365043 26100550
10361041 25830515
11378042 25390482
12394049 24860435

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

SIGNIFICANT LEVEL DATA

0720020094

WHITE SANDS

TABLE 8

STATION ALTITUDE 3989.0 FEET MSL

13 MAR. 62 0830 HRS MST

ASCENSION NO. 94

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
674.3	3989.0	13.6	53.0
864.4	4304.2	13.7	41.0
850.0	4769.3	14.1	40.0
817.4	5349.3	12.2	40.0
762.0	7785.5	7.6	49.0
700.0	10049.5	4.0	62.0
646.8	12144.2	-1.0	66.0
629.2	12865.8	-3.0	72.0
612.6	13501.2	-4.0	65.0
594.8	14101.6	-10.8	94.0
500.0	16706.6	-16.1	97.0
434.2	21935.6	-22.6	91.0
430.8	22345.1	-24.9	48.0
400.0	24111.8	-27.2	50.0

STATION ALTITUDE 3989.00 FEET
 13 MAR. 02 0830 HRS, MST
 ASCENSION NO. 94

UPPER AIR DATA
 0720020094
 WHITE SANDS
 TABLE 9

CELESTIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	DEWPOINT DEGREES CENTIGRADE	REL. HUMID. PERCENT	DENSITY GM/CM ³ METER	SPEED OF SOUND M/SEC	WIND DIRECTION DEGREES (TRUE)	WIND SPEED KNOTS	INDEX OF REFRACTION
3989.0	874.5	13.6	4.2	53.0	1050.4	660.9	00.0	6.0	1.000274
4000.0	874.0	13.6	4.1	52.6	1050.0	660.9	00.9	6.0	1.000274
4500.0	850.3	13.9	.7	40.6	1033.0	660.9	13.1	6.3	1.000261
5000.0	842.9	13.7	.4	40.0	1020.8	660.7	12.0	11.9	1.000250
5500.0	827.8	12.8	-.4	40.0	1005.7	659.7	12.0	10.0	1.000252
6000.0	812.9	11.8	-1.1	40.7	991.1	658.5	14.0	20.1	1.000247
6500.0	790.2	10.6	-1.4	43.1	977.2	657.1	14.0	23.6	1.000244
7000.0	783.7	9.4	-1.8	45.4	963.0	655.7	14.0	27.5	1.000240
7500.0	769.4	8.2	-2.2	47.8	950.2	654.3	14.0	31.6	1.000237
8000.0	755.4	7.2	-2.4	50.3	936.1	653.2	14.0	34.9	1.000233
8500.0	741.5	6.4	-2.4	53.2	921.5	652.3	14.0	37.5	1.000230
9000.0	727.8	5.7	-2.4	56.0	907.0	651.4	15.1	36.4	1.000227
9500.0	714.4	4.9	-2.5	58.9	892.8	650.5	15.0	37.7	1.000224
10000.0	701.3	4.1	-2.6	61.7	878.8	649.5	15.0	37.3	1.000221
10500.0	688.2	2.9	-3.4	62.9	866.1	648.1	15.7	37.1	1.000217
11000.0	675.3	1.7	-4.4	63.8	853.6	646.7	16.4	37.5	1.000212
11500.0	662.7	.5	-5.3	64.8	841.6	645.3	16.4	38.1	1.000208
12000.0	650.3	-.7	-6.3	65.7	829.6	643.8	16.0	38.7	1.000204
12500.0	638.1	-2.0	-6.9	69.0	816.0	642.2	16.7	39.3	1.000201
13000.0	626.0	-3.2	-7.7	70.6	803.1	640.6	17.2	39.5	1.000197
13500.0	614.0	-3.9	-8.4	65.6	793.0	639.6	17.7	39.9	1.000192
14000.0	602.2	-5.2	-9.8	70.0	781.4	638.3	18.3	41.1	1.000189
14500.0	590.6	-6.5	-10.1	75.7	770.2	636.7	18.4	42.5	1.000187
15000.0	579.2	-7.9	-10.5	81.4	759.1	635.1	18.4	44.3	1.000184
15500.0	568.0	-9.2	-10.9	87.1	746.3	633.5	18.4	46.2	1.000181
16000.0	557.0	-10.5	-11.5	92.8	737.0	631.9	19.0	46.2	1.000178
16500.0	546.0	-11.6	-12.5	94.5	726.1	630.6	19.9	50.5	1.000175
17000.0	535.3	-12.6	-13.3	95.0	714.6	629.3	19.0	53.5	1.000171
17500.0	524.7	-13.6	-14.2	95.6	703.3	628.0	19.0	56.0	1.000168
18000.0	514.3	-14.7	-15.1	96.2	692.2	626.6	20.0	57.4	1.000165
18500.0	504.1	-15.7	-16.1	96.8	681.2	625.3	20.0	59.1	1.000162
19000.0	494.0	-16.7	-17.1	96.5	670.3	624.3	20.0	61.3	1.000159
19500.0	484.1	-17.7	-18.2	95.5	659.4	623.0	20.0		1.000155
20000.0	474.3	-18.7	-19.3	94.6	648.6	621.6	20.0		1.000152
20500.0	464.7	-19.7	-20.5	93.7	638.1	620.5	20.0		1.000149
21000.0	455.3	-20.7	-21.6	92.7	627.7	619.2	20.0		1.000146
21500.0	446.1	-21.7	-22.7	91.8	617.5	618.0	20.0		1.000143
22000.0	437.0	-23.0	-24.9	84.2	606.1	616.4	20.0		1.000140
22500.0	428.0	-25.1	-33.2	46.4	590.9	615.7	20.0		1.000136
23000.0	419.1	-25.8	-35.0	41.3	570.0	615.0	20.0		1.000133

GEODOLITE COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

WATER AIR DATA
0720020094
WHITE SANDS

STATION ALTITUDE 5989.00 FEET ASL
13 MAR. 62 0830 HRS MST
ASCENSION 110. 94

TABLE 9 CONT'D

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CELSIUS	REL. HUMID. PERCENT	DENSITY GM/CM ³ METER	SPEED OF SOUND METERS PER SECOND	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
23500.0	410.4	-26.4	36.2	579.3	612.0			1.000151
24000.0	401.9	-27.1	31.1	568.8	611.2			1.000128

GEOLITIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

MANDATORY LEVELS
0720020094
WHITE SANDS

STATION ALTITUDE 3989.00 FEET MSL
13 MAR. 62 0830 HRS MST
ASCENSION NO. 94

TABLE 10

PRESSURE (GEOPOTENTIAL)	TEMPERATURE	REL. HUM.	WIND DATA	
	AIR	PERCENT	DIRECTION	SPEED
MILLIBARS	DEGREES CENTIGRADE		(DEGREES TRUE)	KNOTS
850.0	14.1	40.	122.9	10.1
700.0	10.8	43.	141.9	23.2
600.0	6.9	51.	146.3	35.9
500.0	4.0	62.	160.1	37.3
400.0	-7.7	60.	163.8	30.7
300.0	-5.4	71.	181.0	41.4
200.0	-11.2	94.	193.8	49.6
100.0	-16.1	97.	204.2	60.0
50.0	-21.3	92.		
20.0	-27.2	30.		

STATION ALTITUDE 4051.7 FEET MSL
 13 MAR. 62 0930 HRS MST
 ASCENSION NO. 14

SIGNIFICANT LEVEL DATA
 0720100014
 LC-37

GEODETIC COORDINATES
 32.40175 LAT DEG
 100.51232 LONG DEG

TABLE 11

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
873.9	4051.4	16.4	5.8
850.0	4921.4	12.9	.3
813.6	6025.2	11.1	-1.0
767.0	7631.2	7.1	-1.1
738.4	8556.8	6.0	-1.6
700.0	10087.3	2.8	-1.9
675.2	11045.6	1.5	-4.6
632.2	12775.2	-2.9	-7.4
615.2	13483.0	-4.9	-10.8
597.8	14223.4	-6.2	-11.9
531.6	17203.2	-13.5	-16.2
515.4	17974.1	-16.1	-16.6
500.0	18724.3	-17.3	-17.7
438.6	21919.4	-23.2	-23.7
424.0	22728.3	-27.4	-33.8
			43.0
			42.0
			43.0
			36.0
			36.0
			71.0
			64.0
			71.0
			63.0
			64.0
			80.0
			96.0
			97.0
			96.0
			94.0

STATION ALTITUDE 4951.77 FEET MSL
13 MAR. 52 0930 HRS MST
ASCENSION, NO. 14

UPPER AIR DATA
0720180014
LC-37

GEOLAT. COORDINATES
32.40175 LAT DEG
100.31252 LONG DEG

TABLE 12

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE	REL. HUMIDITY PERCENT	DENSITY GW/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION (IN) SPEED (KNOTS)	INDEX OF REFRACTION
4451.4	873.9	10.4	43.0	1047.8	664.1	0.0	1.000270
4500.0	859.9	14.4	42.4	1038.7	661.6		1.000263
4500.0	844.5	12.6	42.1	1028.0	659.5		1.000257
4500.0	829.3	11.9	42.6	1010.8	658.6		1.000253
4600.0	814.3	11.1	43.0	995.3	657.7		1.000248
4650.0	799.5	9.9	46.8	981.3	656.3		1.000240
4700.0	785.0	8.7	50.9	967.7	654.9		1.000243
4750.0	770.7	7.4	54.9	954.2	653.5	144.3	1.000240
4800.0	756.6	6.7	56.7	939.2	652.0	147.2	1.000236
4850.0	742.7	6.2	57.7	923.7	652.0	153.2	1.000232
4900.0	729.0	5.2	61.1	909.7	650.9	160.1	1.000229
4950.0	715.5	4.1	65.7	896.4	649.6	164.0	1.000226
5000.0	702.3	3.0	70.2	883.4	648.3	167.9	1.000223
5050.0	689.2	2.2	68.0	869.5	647.4	169.2	1.000218
5100.0	676.4	1.6	64.3	855.6	646.5	169.6	1.000213
5150.0	663.6	.3	65.8	843.3	645.0	170.9	1.000209
5200.0	651.1	-9.9	67.9	831.4	643.5	172.1	1.000205
5250.0	638.9	-2.2	69.9	819.0	642.0	174.0	1.000201
5300.0	626.8	-3.5	68.5	808.2	640.3	175.0	1.000197
5350.0	614.8	-4.9	63.0	797.2	638.9	179.3	1.000192
5400.0	603.0	-5.8	63.7	784.5	637.5	182.7	1.000188
5450.0	591.3	-6.9	65.5	772.4	636.2	184.9	1.000185
5500.0	579.8	-8.1	68.2	760.9	634.7	186.9	1.000182
5550.0	568.5	-9.3	70.9	749.6	633.2	189.0	1.000179
5600.0	557.4	-10.6	73.5	738.4	631.7	191.7	1.000176
5650.0	546.5	-11.8	76.2	727.5	630.2	194.1	1.000173
5700.0	535.9	-13.0	78.9	716.7	628.7	196.3	1.000170
5750.0	525.3	-14.5	86.2	706.0	626.9	197.6	1.000167
5800.0	514.9	-16.1	96.0	697.0	624.9	199.2	1.000165
5850.0	504.6	-16.9	96.7	685.2	623.9	200.5	1.000162
5900.0	494.4	-17.8	96.9	673.7	622.9	201.4	1.000159
5950.0	484.3	-18.7	96.8	662.3	621.7	201.4	1.000155
6000.0	474.5	-19.7	96.6	651.5	620.8	201.6	1.000152
6050.0	464.9	-20.6	96.4	640.6	619.4	201.6	1.000149
6100.0	455.5	-21.5	96.3	629.9	618.3	201.6	1.000147
6150.0	446.2	-22.4	96.1	619.5	617.1	201.6	1.000144
6200.0	437.1	-23.6	91.8	609.6	615.6	200.6	1.000141
6250.0	428.1	-26.2	65.9	603.7	612.3	200.6	1.000137

AX WIND DATA INFLUENCE TO ISSING RAW AZIMUTH AND ELEVATION ANGLES.

STATION ALTITUDE 4051.37 FEET (SL)
 13 MAR. 62 0930 HRS MST
 ASCENSION, NO. 14

AMBIATORY LEVELS
 0720180014
 LC-37

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LONG DEG

TABLE 13

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA		
MILLIBARS	FEET	ATP DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS	
650.0	4618.	12.9	.3	42.	9999.0	9999.0XX	
600.0	6481.	10.0	-.9	47.	9999.0	9999.0XX	
750.0	8229.	6.5	-1.4	57.	140.3	41.5	
700.0	10077.	2.8	-1.9	71.	108.5	43.1	
650.0	12036.	-1.0	-6.2	63.	172.2	44.9	
600.0	14112.	-6.0	-11.7	64.	163.3	44.7	
550.0	16327.	-11.4	-14.9	73.	193.3	50.7	
500.0	18628.	-17.3	-17.7	97.	200.9	59.8	
450.0	21267.	-22.0	-22.5	90.	200.8	60.3	

XX WIND DATA INVALID DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.

STATION ALTITUDE 3989.0 FEET MSL
13 MAR. 62 1036 HRS. 51
ASCENSION NO. 95

SIGNIFICANT LEVEL DATA
070000Z
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

TABLE 14

PRESSURE	GEOMETRIC ALTITUDE	TEMPERATURE AIR	DEWPOINT	HUMIDITY PERCENT
MILLIBARS	MSL FEET	DEGREES	CENTIGRADE	
874.5	3989.0	20.0	5.5	53.0
860.4	4154.2	19.0	1.5	31.0
850.0	4786.7	15.8	.4	35.0
820.8	5755.3	12.4	-5	41.0
811.4	6072.4	12.2	-5	42.0
735.6	8737.4	4.8	-2.1	61.0
709.0	10060.1	1.5	-2.5	76.0
662.6	11500.8	-1.8	-5.4	89.0
636.2	12568.6	-3.2	-7.2	74.0
627.4	12930.8	-3.9	-6.4	71.0
584.2	14764.2	-5.5	-11.1	68.0
552.6	15974.7	-12.2	-12.8	95.0
500.0	18661.2	-16.9	-10.5	89.0
475.0	19919.9	-20.4	-22.1	86.0
462.4	20574.7	-20.6	-24.9	82.0
447.2	21385.0	-22.2	-24.0	79.0
424.6	22619.1	-26.3	-29.5	74.0
417.4	23036.4	-27.3	-33.0	58.0
410.0	23459.8	-27.9	-34.7	52.0
400.0	24043.9	-27.6	-35.2	48.0

GEODOLITE COORDINATES
32.40043 LAT UEG
106.37033 LONG JEG

UPPER AIR DATA
0720020095
WHITE SANDS
TABLE 15

STATION ALTITUDE 3989.00 FEET MSL
13 MAR. 62 1030 HRS MST
ASCENSION NO. 95

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CELSIUS	DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND METERS PER SECOND	WIND DIRECTION DEGREES (TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
3989.0	874.5	20.0	3.3	33.0	1035.7	668.1	190.0	18.1	1.000265
4000.0	874.2	19.9	3.1	32.9	1035.6	668.1	109.7	18.1	1.000265
4500.0	850.7	17.3	.9	33.2	1027.2	664.8	170.4	18.9	1.000258
5000.0	843.5	15.1	.2	36.3	1016.7	662.3	104.9	20.7	1.000255
5500.0	820.4	13.3	-.2	39.4	1004.7	660.3	155.4	23.2	1.000252
6000.0	813.5	12.2	-.3	41.8	990.3	659.1	148.0	26.2	1.000248
6500.0	798.7	11.0	-.4	45.0	976.5	657.6	145.9	26.4	1.000245
7000.0	764.2	9.6	-.7	48.6	963.4	656.0	140.6	24.7	1.000242
7500.0	769.9	8.2	-1.0	52.2	950.5	654.4	148.4	24.6	1.000239
8000.0	753.8	6.8	-1.4	55.7	937.8	652.8	151.4	26.5	1.000236
8500.0	742.1	5.5	-1.8	59.3	925.3	651.2	153.9	26.4	1.000232
9000.0	720.4	4.1	-2.0	64.0	912.6	649.6	150.1	30.9	1.000229
9500.0	714.9	2.9	-2.1	69.6	899.8	648.2	157.9	33.4	1.000227
10000.0	701.6	1.6	-2.2	75.3	886.9	646.7	160.4	35.4	1.000224
10500.0	688.4	.5	-2.6	80.0	873.9	645.3	164.0	36.6	1.000220
11000.0	673.5	-.6	-2.9	84.4	861.1	644.0	167.3	37.9	1.000217
11500.0	662.8	-1.8	-3.4	88.9	848.5	642.6	175.0	38.8	1.000214
12000.0	650.2	-2.5	-5.1	82.0	834.7	641.8	182.5	40.5	1.000208
12500.0	637.9	-3.1	-6.9	75.0	821.1	640.9	187.9	42.1	1.000202
13000.0	625.7	-4.1	-8.5	71.6	808.6	639.8	191.7	43.5	1.000197
13500.0	613.7	-5.6	-9.1	76.3	797.6	637.6	194.6	44.5	1.000194
14000.0	601.8	-7.2	-9.9	80.9	786.8	635.9	195.1	44.2	1.000191
14500.0	590.2	-8.7	-10.7	85.5	776.2	634.1	195.7	43.8	1.000188
15000.0	578.8	-10.1	-11.5	89.5	765.1	632.4	195.7	43.4	1.000184
15500.0	567.5	-11.3	-12.2	92.6	753.7	630.9	195.6	43.0	1.000181
16000.0	556.3	-12.4	-13.1	94.7	742.1	629.6	195.6	43.2	1.000178
16500.0	545.3	-13.2	-14.0	93.7	729.8	628.5	194.5	43.3	1.000174
17000.0	534.4	-14.1	-15.0	92.6	717.7	627.5	194.0	44.0	1.000171
17500.0	523.8	-14.9	-15.0	91.5	705.6	626.4	193.6	44.7	1.000167
18000.0	513.4	-15.8	-17.0	90.4	694.1	625.4	193.2	43.8	1.000164
18500.0	503.2	-16.6	-18.0	89.3	682.7	624.3	192.7	42.8	1.000161
19000.0	493.1	-17.8	-19.3	88.2	672.2	622.8	193.7	45.7	1.000157
19500.0	483.2	-19.2	-20.8	87.0	662.3	621.1	194.5	48.5	1.000154
20000.0	473.4	-20.4	-22.2	85.5	652.1	619.6	194.6	53.4	1.000151
20500.0	463.8	-20.6	-22.8	82.5	639.2	619.4	194.7	58.0	1.000148
21000.0	454.4	-21.4	-23.9	80.4	628.4	618.3	190.0	57.2	1.000145
21500.0	445.1	-22.6	-25.3	78.5	618.4	616.9	190.9	59.4	1.000142
22000.0	435.9	-24.2	-27.2	76.5	609.7	614.8	202.3	64.1	1.000140
22500.0	426.9	-25.9	-29.1	74.5	601.2	612.7	203.9	71.9	1.000137
23000.0	418.0	-27.2	-32.7	59.4	581.9	611.1			1.000134

STATION ALTITUDE 3989.00 FEET MSL
13 MAR. 62 1030 HRS PST
ASCENSION NO. 95

UPPER AIR DATA
0720020093
WHITE SANDS

TABLE 15 CONT'D

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM ³	SPEED OF SOUND METERS PER SECOND	WIND DATA DIRECTION (IN) SPEED (KNOTS)	INDEX OF REFRACTION
23500.0	409.3	-27.9	51.7	581.2	610.2		1.000131
24000.0	400.7	-27.6	48.3	569.4	610.5		1.000129

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

STATION ALTITUDE 3989.00 FEET MSL
13 MAR. 42
ASCENSION IS. 95

MAJORITY LEVELS

072002009J
WHITE SANDS

TABLE 16

PRESSURE EQUIPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIMARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE	PERCENT	WIND DIRECTION DEGREES (TN)	SPEED KNOTS	
450.0	4783.	15.8	.4	35.	109.0	17.9	
600.0	6456.	11.1	-4	45.	145.9	20.5	
750.0	8209.	6.3	-1.0	57.	152.5	27.3	
700.0	10050.	1.5	-2.3	70.	160.8	35.5	
650.0	11936.	-2.5	-5.1	62.	102.6	40.5	
600.0	14066.	-7.4	-10.0	62.	195.2	44.1	
550.0	16267.	-12.9	-15.6	94.	194.7	45.3	
500.0	18535.	-16.9	-18.3	89.	193.0	45.7	
450.0	21203.	-21.9	-24.5	80.	196.7	57.2	
400.0	24004.	-27.6	-35.2	40.			

STATION ALTITUDE 3989.00 FEET MSL
13 MAR. 52 1130 HRS MST
ASCENSION NO. 96

SIGNIFICANT LEVEL DATA
0720020090
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

TABLE 17

PRESSURE	GEOMETRIC ALTITUDE	TEMPERATURE AIR	TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT
INCHES	ASL FEET			
373.0	3989.0	20.8	2.0	30.0
861.0	4350.2	19.9	5.7	42.0
850.0	4742.2	17.6	4.6	42.0
833.4	5294.4	16.1	3.5	43.0
820.0	5611.3	16.3	4.0	44.0
723.4	9188.1	6.5	-9	53.0
700.0	10069.8	2.8	-2.3	69.0
658.2	11695.1	-2.1	-2.0	90.0
644.0	12264.6	-3.0	-0.2	67.0
623.0	13091.9	-4.9	-10.4	65.0
615.4	13441.7	-6.4	-9.1	61.0
601.8	14016.0	-6.9	-12.7	63.0
573.5	15243.2	-10.9	-14.0	70.0
560.4	15826.7	-11.6	-10.8	65.0
552.2	16197.7	-12.5	-10.5	72.0
546.6	16343.6	-12.9	-17.7	67.0
544.2	16563.9	-13.0	-13.4	97.0
512.0	18088.4	-15.0	-15.2	98.0
500.0	18675.8	-17.6	-10.1	90.0
493.2	19012.6	-18.5	-21.1	80.0
480.4	19636.7	-18.3	-24.4	64.0
465.4	20430.1	-21.3	-20.3	64.0
457.0	20829.0	-22.3	-20.9	66.0
442.6	21631.7	-24.1	-29.6	60.0
428.0	22444.8	-25.9	-26.4	79.0
400.0	24052.4	-27.5	-29.0	67.0

STATION ALTITUDE 3989.00 FEET MSL
13 MAR. 62 1130 HRS (LST)
ASCENSION NO. 96

UPPER AIR DATA
0720020090
WHITE SANDS
TABLE 18

GEOMETRIC COORDINATES
32.44043 LAT DEG
106.57033 LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM ³ METER	SP. HUM. MM HG	WIND DATA DIRECTION (IN) SPEED (KNOTS)	INDEX OF REFRACTION
3989.0	873.0	20.8	2.6	30.0	1031.3	669.0	250.0	1.000262
4000.0	872.7	20.7	2.7	30.4	1031.1	668.9	249.7	1.000262
4500.0	857.3	18.4	5.3	42.0	1020.4	660.5	234.0	1.000267
5000.0	842.2	16.9	4.1	42.5	1007.8	664.7	216.0	1.000261
5500.0	827.3	16.2	3.9	43.6	992.2	663.9	198.7	1.000258
6000.0	812.4	15.2	3.6	45.6	977.0	662.8	183.9	1.000254
6500.0	797.8	13.9	3.0	47.7	964.8	661.2	172.7	1.000250
7000.0	783.4	12.5	2.3	49.8	952.1	659.0	162.4	1.000246
7500.0	769.2	11.1	1.6	51.9	939.5	658.0	154.5	1.000242
8000.0	755.4	9.8	.9	54.0	927.1	656.3	146.5	1.000237
8500.0	741.8	8.4	.2	56.1	914.9	654.7	139.0	1.000233
9000.0	728.4	7.0	-6	58.2	902.9	653.1	131.5	1.000229
9500.0	715.0	5.2	-1.4	62.5	892.3	650.9	123.6	1.000226
10000.0	701.8	3.1	-2.2	68.2	882.0	648.4	115.8	1.000222
10500.0	688.7	1.5	-2.2	76.1	871.0	646.6	107.6	1.000218
11000.0	675.8	-0.0	-2.3	84.5	859.4	644.8	99.7	1.000214
11500.0	663.1	-1.5	-2.5	92.8	847.9	643.0	91.7	1.000210
12000.0	650.6	-2.6	-5.5	80.5	835.6	641.0	83.4	1.000207
12500.0	638.2	-3.5	-8.9	66.4	823.1	640.3	75.7	1.000200
13000.0	626.0	-4.7	-10.2	65.2	811.0	638.9	67.3	1.000195
13500.0	614.0	-6.5	-9.4	79.2	800.5	636.6	59.4	1.000194
14000.0	602.2	-6.9	-12.6	63.5	788.7	635.2	51.4	1.000188
14500.0	590.5	-8.5	-13.1	68.9	776.1	634.2	43.4	1.000185
15000.0	579.0	-10.1	-13.7	75.0	763.7	632.3	35.6	1.000182
15500.0	567.7	-11.2	-15.2	72.3	754.1	630.9	27.6	1.000178
16000.0	556.6	-12.0	-16.7	68.3	741.6	629.9	19.6	1.000174
16500.0	545.6	-13.0	-18.5	88.3	729.5	628.6	11.6	1.000174
17000.0	534.8	-13.6	-13.9	97.3	718.7	628.1	3.6	1.000171
17500.0	524.2	-14.2	-14.5	97.6	704.3	627.3	2.1	1.000168
18000.0	513.8	-14.9	-15.1	97.9	692.1	626.5	2.0	1.000165
18500.0	503.6	-16.8	-17.2	96.6	683.6	624.1	2.0	1.000161
19000.0	493.5	-18.5	-21.0	96.6	674.4	622.0	2.0	1.000157
19500.0	483.5	-19.1	-23.6	67.5	662.6	621.1	2.1	1.000153
20000.0	473.7	-20.2	-25.2	68.0	652.0	619.8	2.1	1.000150
20500.0	464.1	-21.5	-26.4	68.4	642.0	618.2	2.1	1.000147
21000.0	454.6	-22.7	-27.5	68.7	631.9	616.7	2.1	1.000145
21500.0	445.2	-23.8	-29.2	61.0	621.7	615.3	2.1	1.000142
22000.0	436.0	-24.9	-29.0	68.6	611.6	613.9	2.1	1.000140
22500.0	427.0	-26.0	-28.5	70.3	601.5	612.7	2.1	1.000138
23000.0	418.1	-26.5	-28.6	81.8	590.1	612.1	2.1	1.000135

STATION ALTITUDE 3989.70 FEET MSL

13 MAR. 62

ASCENSION NO. 90

UPPER AIR DATA

0720020090

WHITE SANDS

COORDINATES

32.40043 LAT DEG

106.37033 LON DEG

TABLE 18 CONT'D

GEOMETRIC ALTITUDE MSL FEET	PRESSURE	AIR TEMPERATURE DEGREES CELSIUS	REL. HUM. PERCENT	DENSITY GM/CM ³	SPEED OF SOUND METER	WIND DATA DIRECTION SPEED KNOTS	INDEX OF REFRACTION
23500.0	409.4	-27.0	84.3	579.0	611.4		1.000132
24000.0	400.9	-27.4	86.7	568.1	610.8		1.000130

STATION ALTITUDE 3989.00 FEET MSL
 13 MAR. 12 1130 HRS MST
 ASCENSION NO. 96

MANIPATORY LEVELS
 0720020090
 WHITE SANDS

CELESTIAL COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

TABLE 19

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	ATK DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4739.	17.6	4.0	42.	226.2	17.0
800.0	6429.	14.1	3.1	47.	174.0	25.0
750.0	8201.	9.2	.0	52.	177.5	20.0
700.0	10060.	2.8	-2.3	59.	186.0	27.0
650.0	12010.	-2.6	-5.7	79.	193.5	32.8
600.0	14076.	-7.1	-12.0	64.	196.7	39.3
550.0	16277.	-12.8	-17.3	69.	208.3	37.3
500.0	18650.	-17.6	-18.1	90.	200.3	50.0
450.0	21212.	-23.2	-28.3	63.	210.0	47.1
400.0	24613.	-27.5	-29.0	87.		